Agency problems of excess endowment holdings in not-for-profit firms

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Abstract

We extend the literature on the agency costs of excess cash holdings by providing evidence that excess holdings of endowment assets cause agency problems in not-for-profit firms. We find that CEO pay and total officer and director pay are greater for firms with excess endowments. We also provide evidence that program expenditures on the not-for-profit good are lower for firms with excess endowments. We find only modest evidence that managers use excess endowments to increase investment. Instead, excess endowments are highly persistent over time, suggesting that not-for-profit managers prefer the flexibility and discretion afforded them by excess endowment assets.

JEL classification: G31; G35; G38; J33; L31

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1. Introduction

Not-for-profit firms often maintain large endowments, and the determinants and consequences of this unusual feature have received little study. An endowment is a fund of cash and securities that the not-for-profit can use to finance current and future expenses. The purpose of this paper is to study the agency problems of excess holdings of endowment assets in not-for-profit firms.[1]

We use as a basis of our study the literature that explores agency problems related to cash holdings in for-profit firms (e.g., Jensen, 1986). Evidence on whether excess cash results in agency problems in for-profit firms is mixed. Blanchard, Lopez-de-Silanes and Shleifer (1994) document excessive investment and acquisition activity for eleven firms that experience a large cash windfall due to a legal settlement, and Harford (1999) finds that firms with excess cash are more likely to make value-decreasing acquisitions. Further, Pinkowitz and Williamson (2004) show that the market valuation of a firm's cash holdings is lower when agency problems are likely to be greater. In contrast, Opler, Pinkowitz, Stulz and Williamson (1999) document only modest evidence of greater spending on new projects and acquisitions for a large sample of firms with high excess cash.

Whether cash-related agency problems are present to a greater or lesser extent in not-for-profits is an open question. On one hand, cash-related agency problems are potentially exacerbated in not-for-profit firms because unlike for-profits, not-for-profits have no residual claimants with strong monitoring incentives, and no feasible method of returning unnecessary cash holdings to donors. In other words, there is no analogue to

[1] We use the terms "not-for-profit" and "nonprofit" interchangeably in this paper.

dividends and share repurchases used to return funds to shareholders. Further, cash endowment holdings by not-for-profits are, on average, substantially larger than cash holdings by for-profits. On the other hand, recent work by Fisman and Hubbard (2002) argues that donors serve an important monitoring role in not-for-profits and minimize agency costs.

How managers behave in the presence of excess cash in not-for-profits vis-à-vis for-profits is also interesting to consider. Some of the more frequently cited cash-related agency problems in for-profit firms, such as excessive risk-reducing acquisitions, are likely to be less feasible in not-for-profit firms. In addition, not-for-profit managers may have weaker incentives to engage in risk-reducing activities because less of their wealth is concentrated in firm-specific assets (i.e., the future compensation of both types of managers has a firm-specific element, but for-profit managers also have a large proportion of their wealth invested in firm-specific stock and options). On the other hand, in the spirit of Jensen (1986), Hansmann (1990) argues that not-for-profit managers have incentives to hold endowments that are larger than optimal from the perspective of the donors so that they can consume excess compensation or excess perquisites.

In a broad sample of not-for-profits over the period from 1992 to 1999, we examine whether excess endowments are associated with high managerial compensation and low expenditures on production of the not-for-profit good. We use the model developed by Fisman and Hubbard (2002) to form expectations about firm-specific optimal levels of endowment. We then test whether CEO pay, and total officer and director pay, are unusually large in not-for-profits with excess endowments. We find that CEOs and officers and directors receive excess compensation when endowments are

excessive. Further, we document that program expenditures on production of the not-for-profit good are lower in firms with excess endowments.

These findings are consistent with the for-profit literature that documents agency problems in firms with excess cash holdings. However, unlike the for-profit literature, we find only modest evidence that managers use excess endowments to increase investment. Instead, excess endowments are highly persistent over time, much more so than in for-profit firms, suggesting that not-for-profit managers prefer the flexibility and discretion afforded them by excess endowment assets.

Our research extends recent work by Fisman and Hubbard (2002). They predict and find that donors choose an optimal endowment size that maximizes (1) the benefits of endowment funds as a buffer to smooth production of the not-for-profit good, net of (2) the agency costs of endowment funds, which include the potential for managers to divert assets for their private benefit. They also present evidence that the agency costs of donation inflows increase when state regulatory oversight is weaker.[2] They predict and find that donors recognize these agency costs, and respond both by limiting donations and by requiring that donations be spent rather than accumulated in the endowment.

While Fisman and Hubbard (2002) focus on how donors constrain endowment holdings to minimize agency costs, our interest is in examining whether and what types of agency problems occur when endowments become larger than optimal. We add to the not-for-profit governance literature by using excess endowment as a firm-specific proxy

[2] Specifically, they find that when regulatory oversight is weaker, CEO pay increases more when donations increase. They view the positive relation between pay and donations as an agency cost, and interpret the result as consistent with smaller agency costs when regulatory oversight is stronger. If one instead views the positive relation between pay and donations as pay-for-performance (e.g., Hallock, 2002), this result is consistent with regulatory oversight and pay-for-performance being substitute monitoring mechanisms.

for potential agency problems.[3] We show that the added financial flexibility offered by abnormally large endowments comes at a cost to not-for-profit firms, and that these costs take the form of excessive managerial pay and reduced expenditures on the production of the not-for-profit good.

The remainder of this paper is organized as follows. In Section 2, we offer background on not-for-profits and review the related literature. We define our hypotheses in Section 3. We describe our data and research design in Section 4, and present the results of our tests in Section 5. We provide sensitivity tests of our results in Section 6. In Section 7, we provide a summary and concluding remarks.

2. Background on not-for-profits and literature review

The defining feature of nonprofit organizations is not that they cannot make profits – many do – it is that they are prohibited from distributing their profits to anyone who exercises control over the firm (Hansmann, 1980, 1996). This "non-distribution constraint" means that no parties have a claim to a not-for-profit's residual earnings. Consequently, not-for-profit firms have no shareholders and cannot issue equity.

However, "instead of issuing shares, not-for-profits can raise 'equity'" through contributions from donors (Gentry, 2002, p. 847). Analogous to cash and marketable securities in a for-profit firm, the endowment consists of past donations, past profits, and other capital that has been accumulated, but not expended, in the not-for-profit's operations. Thus, similar to a shareholder in a for-profit firm, a donor provides equity capital; unlike a shareholder in a for-profit firm, the donor has no ability to require the

[3] In a broad study of not-for-profit CEO compensation, Frumkin and Keating (2004) find that CEO compensation increases with revenue that comes from commercial sources and with endowment levels as measured by the non-cash investment portfolio. They interpret these results as evidence that not-for-profit CEO compensation is influenced by agency costs of free cash flow.

return of that capital if cash balances grow too large. Further, because the endowment comes from current and past donors, it would be difficult for the not-for-profit to return donations even if it desired. Finally, adverse tax consequences to the donors likely render any return of cash to donors undesirable.

The fact that not-for-profits have no residual claimants does not imply that these organizations are without effective monitors. Donors, particularly those making large contributions, often have control rights over the firms even though they do not have residual claims. For example, large donors often sit on not-for-profit boards (Fama and Jensen, 1983). The fact that large donors have chosen to invest their private capital in a particular not-for-profit also suggests that these benefactors have a vested interest in effectively carrying out the not-for-profit's mission.

Hansmann (1990), in a discussion of university endowments, examines a number of reasons why a not-for-profit may accumulate endowment assets. One reason offered is precautionary savings – the endowment assets provide a "financial buffer" (p. 39) against periods of financial adversity, and allow the firm to maintain a constant level of services in the face of fluctuating expenses and income from donations and other sources. This precautionary savings explanation is similar to the theory raised in the for-profit literature to explain corporate cash holdings (e.g., Myers and Majluf, 1984; Harford, 1999; Opler et al., 1999).

As discussed above, Fisman and Hubbard (2002) formalize and test a precautionary savings model of optimal endowment size. They predict and find that donors allow firms to hold larger endowments when their operating environment is characterized by highly uncertain cash flows, limited alternative sources of financing,

stronger regulatory oversight, and large fixed costs. These determinants are analogous to the for-profit literature on corporate cash holdings (Harford, 1999; Opler et al., 1999). Firms bear costs when they experience a shortage of funds necessary to carry out their operating and investing activities, and they trade off these costs against the costs of managerial discretion.

3. Hypothesis Development

We expect that when donors are active and efficient monitors, not-for-profit endowments are optimal, on average. However, similar to the arguments made by Harford (1999) and Opler et al. (1999) about cash holdings in the for-profit literature and by Hansmann (1990) in the not-for-profit literature, we predict that managers will attempt to increase the endowment beyond the optimal level so as to increase their scope for discretion. An increase in endowment that increases managers' scope for discretion can also occur exogenously due to a shock to cash flows or asset value. Thus, excess endowments can signal the existence of agency problems.

The potential agency problems in not-for-profits are likely to be substantially different than the types of agency problems experienced by for-profit firms. The primary agency problem emphasized in the for-profit excess cash holdings literature is executives' desire to maintain excess cash to reduce firm risk or to increase their discretion over investment, possibly through value-destroying acquisitions or investments (Harford, 1999; Opler et al., 1999). However, managers of not-for-profit firms have less ability to undertake diversifying acquisitions. Not-for-profit managers are also generally exposed to less firm-specific risk than their for-profit counterparts because they are not required to hold large quantities of stock or options (in both types of firms, managers'

future compensation is exposed to firm-specific risk). Further, unlike for-profit managers, not-for-profit managers cannot disburse excess cash through dividends or share repurchases.

Managers of not-for-profit firms have four primary options when faced with excess endowment assets: (1) consume assets for their private benefit in the form of excess compensation or perquisites; (2) increase program expenditures on the production of the not-for-profit good; (3) invest in fixed assets that expand the production capacity of the firm; or (4) continue to hold the excess endowment assets. With respect to the first two options, we predict that if excess endowments are indicative of agency problems, managers will consume excess private benefits through compensation or perquisites, and will seek to reduce program expenditures on the production of the not-for-profit good so as to maintain the excess endowment that can facilitate future excess private benefits. Such a reduction in program expenditures may also be due to lower operating efficiency at firms with substantial agency problems. Thus, we test the following two hypotheses:

H1: Excess managerial compensation and perquisite consumption is greater for firms with excess endowment assets, ceteris paribus.

H2: Expenditures on production of the not-for-profit good are lower for firms with excess endowment assets, ceteris paribus.

With respect to options (3) and (4) above, we also provide descriptive evidence on whether excess endowments are associated with greater investment in fixed assets, and the extent to which excess endowments persist over time. We do not form hypotheses about the relation between investment and agency problems. A firm with agency problems may under-invest in order to maintain the private benefits of large cash balances, or it may over-invest as a means of increasing perquisite consumption. Finally,

we examine whether excess endowments persist across time to determine the extent to which potential agency problems persist in not-for-profits.

4. Sample selection, variable measurement, and research design

4.1. Sample Selection and Data Description

We use data from the tax returns of 501c(3) tax-exempt organizations. This database is provided by the National Center for Charitable Statistics (NCCS) through the Statistics of Income (SOI) files of the IRS for the years 1982 to 2000. These data changed format in 2000, so we exclude this year. We restrict our attention to the years beginning in 1992 when CEO compensation became available. These data contain all 501c(3) organizations with more than $10 million in assets plus a random sample of about 4,000 of the smaller organizations. Our beginning sample consists of 98,677 firm-year organizations during the years 1992 to 1999. As do Fisman and Hubbard (2002), we exclude grant-making foundations, mutual organizations, and organizations whose industry is "unknown" industries (classified as 'Y', 'T', and 'Z' by the NTEE industry classification).

We delete observations with apparent coding errors: those that report negative values of total contributions, total revenues, program expenses, total expenses, investment securities, total assets, total liabilities and top officer compensation. We also delete firms that report CEO compensation, but not compensation for all officers as a group, since this is a logical inconsistency and apparent data error. These deletions result in a sample of 67,044 observations. We also exclude observations that do not have the four prior years of data that we need to compute volatility of total revenue as an input to the optimal endowment model described in the next section. This restriction reduces the

sample size to 45,561 observations. Finally, we delete observations reporting zero values for CEO compensation or for the compensation of officers and directors. We exclude these observations because we expect that the pay-related agency problems predicted in Hypothesis 1 are not relevant for firms where executives perform their duties for no pay.[4] The final sample with available data to estimate the optimal endowment model shown in Equation (1) below consists of 29,297 firm-year observations from 6,615 different organizations.

Table 1 presents the distribution of observations by industry following the major categories of the National Taxonomy of Exempt Entities (NTEE) industry classification. As in Fisman and Hubbard (2002) and in Hallock (2002), our sample is concentrated in Health (41%) and in Education (27%). The table presents median values for endowment as a multiple of total expenses. This measure can be interpreted as the number of years that the organization would be able to fund its expenses without additional revenues. Median endowment scaled by expenses by industry ranges from a low of 0.21 for 'Mental Health' firms up to 2.05 for 'Social Science Research' firms. In contrast, existing research documents much smaller cash holdings in for-profit firms. For example, Opler et al. (1999) reports median cash holdings scaled by non-cash assets of 0.065 across their sample of for-profit firms, which is much smaller than the median endowment scaled by non-endowment assets of 0.41 in our sample (untabulated).

The remaining columns present median data on total revenues, total expenses, CEO compensation, and officer and director compensation, program expenses, and

[4] As a robustness check, we confirm that our tests of Hypothesis 2 (i.e., program-expense-related agency problems) are robust to including observations with zero values for CEO compensation or for the compensation of officers and directors.

investment expenditures. Median CEO compensation ranges from a high of $164,620 in the 'Health' industry to a low of $66,080 in the 'Food/Agriculture' industry. The Health industry has the highest median CEO compensation, but has the lowest median compensation for officers and directors as a group at 0.75% of total expenses.[5] Median program expenses as a fraction of total expenses is the smallest in the 'Public safety' industry at 72.9% and the largest in the 'Housing/Shelter' industry at 90.5%. These across-industry differences emphasize the importance of controlling for industry variation in endowments, compensation and program expenses.

Insert Table 1 here

4.2. Model of Optimal Endowment

We estimate a model for optimal endowment that follows Fisman and Hubbard (2002). They predict that endowments will be large in firms with highly uncertain cash flows, stronger regulatory oversight, large fixed costs, and limited alternative sources of financing.

We follow Fisman and Hubbard, and model the ratio of endowment to total expenses. We measure endowment (*Endow/Exp*) as the sum of cash, savings, and investment securities (IRS form 990 - line 45, column (b) + line 46, column (b) + line 54, column (b)) deflated by total expenses (IRS form 990 - line 17). Because we are interested in agency costs of excess liquid assets, and to be consistent with the for-profit literature on agency costs of excess cash holdings, we exclude less liquid assets, such as inventory, land, buildings, and equipment.

As noted in Fisman and Hubbard (2002), scaling endowment by expenses can be

[5] These univariate statistics may well reflect firm size and other characteristics. In addition, as noted below, we also find that all of our results are robust to excluding the health industry observations.

problematic because of potentially offsetting effects at firms with agency problems. That is, in the presence of agency problems, donors are expected to act to reduce the endowment, but managers may respond by lowering expenses. Thus, firms with unresolved agency problems can have unusually large endowments either because the endowment is too large or because expenses are too low. To ensure that our results are not influenced by this scaling issue, we replicate all of our tests using the logarithm of endowment (instead of endowment scaled by expenses) as our dependent variable in the endowment model. If we use residuals from this model to measure excess endowment, all of our findings below are robust to this change.

Firms with uncertain cash flows are expected to require a greater buffer of precautionary funds. We proxy for cash flow uncertainty using the coefficient of variation of total revenue (*CVREV*) (IRS form 990 - line 12). *CVREV* is the ratio of the standard deviation of total revenue to mean total revenue, both measured over the five years ending at year t. We require at least four annual observations of total revenues for our computation, and if less historical data are available, we delete the observation.

Firms with alternative financing sources are less likely to require precautionary funds. We proxy for access to financing sources using a *Loan Dummy* variable coded '1' if the firm has obtained a loan in the last ten years ending at year t. We categorize a firm as having a loan if the firm reports tax-exempt bond liabilities (IRS form 990 - line 64a, column (b)) or mortgages and other notes payable (IRS form 990 - line 64b, column (b)). Following Fisman and Hubbard, we also interact the *Loan Dummy* variable with *CVREV* with the expectation that cash flow uncertainty requires a smaller buffer of funds when firms have access to alternative financing sources.

In states with greater regulatory oversight, donors are expected to allow firms to hold greater endowments. We control for variation in regulatory oversight across states using Fisman and Hubbard's regulation measure. This measure is a count of the number of powers of a state's Attorney General, reported by the Office of the Ohio Attorney General report in 1974. This discrete variable takes values from zero to eight, and we label it '*Regulation*'. Fisman and Hubbard do not include regulation in their main model of *Endow/Exp* because of the scaling issue raised above which suggests that although firms in states with weaker oversight will optimally have lower endowment levels, managers may respond by reducing payments to their customers. Thus, these offsetting effects can result in no correlation between regulation and *Endow/Exp*. Because our primary objective is to obtain a measure of excess endowment that controls for the economic determinants of optimal endowment, we err on the side of ensuring we have a comprehensive model and include the regulation variable. However, we also tabulate the endowment model excluding this variable as a robustness check.

We control for inflows to the firm and for firm size using the natural logarithm of total revenue (IRS form 990 - line 12). We also control for industry, state, and year fixed effects in the model. The industry (state) effects help control for industry-specific (state-specific) differences in donor income, regulation, and firm growth opportunities. The optimal endowment regression is:

$$\begin{aligned} Endow/Exp_{it} = {} & \beta_0 + \beta_1 * Regulation + \beta_2 * CVREV_{it} + \beta_3 * LogRevenue_{it} \\ & + \beta_4 * Loan\ Dummy_{it} + \beta_5 * (Loan\ Dummy_{it}) * CVREV_{it} + \\ & \Sigma\, \beta_t * Year_t + \Sigma\, \beta_j * State_j + \Sigma\, \beta_m * Industry_m + \varepsilon_{it}. \end{aligned} \qquad (1)$$

Following the predictions above, we expect that β_1 and $\beta_2 > 0$ and that β_3, β_4, and $\beta_5 < 0$. We use the residuals from an OLS estimation of equation (1) as a proxy for

excess endowment, and we use this proxy to test our hypotheses that excess endowments are indicative of agency problems.

4.3. Compensation, Program Expense and Investment Regressions

To test Hypothesis 1, we construct two measures of managerial compensation. Our first measure is total CEO compensation, *CEO COMP*, computed as the natural logarithm of CEO compensation. This measure includes: (1) base compensation like "salary, fees, and bonuses" (IRS form 990 – Schedule A – Part I, column (c)), (2) contributions to employee benefit plans and deferred compensation (IRS form 990 – Schedule A – Part I, column (d)), and (3) expense account and other allowances compensation (IRS form 990 – Schedule A – Part I, column (e)). Second, we compute the fraction of total expenses attributable to the compensation of top executives. *O&D COMP%* is the compensation of officers and directors (IRS form 990 - line 25, column (a)) as a percentage of total expenses (IRS form 990 - line 17).

To test Hypothesis 2, we measure *PROGEXP%* as total program services expenses (form 990 - line 13) as a percentage of total expenses (form 990 - line 17). This measure is widely used as a measure of performance both by donors and by previous researchers (Callen, Klein, and Tinkelman, 2003). A high proportion of program expenses to total expenses, which is the same as a low proportion of management, general and fund-raising expenses to total expenses, means that the organization is efficiently delivering services to maximize the not-for-profit good.

Finally we measure the amount of investments in fixed assets by the firm in the current year. *INVESTMENT%* is measured as the change in land, buildings, and equipment (form 990 - line 57a, column (b)) plus depreciation (form 990 - line 42,

column (a)). We express this variable as a percentage of total expenses (form 990 - line 17).[6]

We test the impact of abnormal endowment on the four dependent variables described above using regression models of the following form:

$$(Dependent\ Variable_n)_{it} = \beta_0 + \beta_1 * Controls + \beta_2 * Ab\ Endow_{it-1} + \Sigma\, \beta_t * Year_t + \Sigma\, \beta_j * State_j + \Sigma\, \beta_m * Industry_m + \varepsilon_{it}. \quad (2)$$

$$(Dependent\ Variable_n)_{it} = \beta_0 + \beta_1 * Controls + \beta_2 * Ab\ Endow_{it-1} + \beta_3 * Ab\ Endow_{it-1} * Neg\ Ab\ Endow_{it-1} + \Sigma\, \beta_t * Year_t + \Sigma\, \beta_j * State_j + \Sigma\, \beta_m * Industry_m + \varepsilon_{it}. \quad (3)$$

$$(Dependent\ Variable_n)_{it} = \beta_0 + \beta_1 * Controls + \beta_2 * Dummy\ Ab\ Endow_{it-1} + \Sigma\, \beta_t * Year_t + \Sigma\, \beta_j * State_j + \Sigma\, \beta_m * Industry_m + \varepsilon_{it}. \quad (4)$$

where $Dependent\ Variable_n$ represents either *O&D COMP%*, *CEO COMP*, *PROGEXP%*, or *INVESTMENT%*.

In Model (2), we use a continuous measure of the abnormal endowment measure, $Ab\ Endow_{it-1}$, which is simply the residual from the optimal endowment model described by Equation (1). In Model (3), we construct a dummy variable, $Neg\ Ab\ Endow_{it-1}$, coded as '1' if the abnormal endowment is less than or equal to zero, and '0' otherwise. We interact this variable with the continuous abnormal endowment variable to allow the coefficient to be different for firms with positive and negative endowments. This specification is consistent with Opler et al.'s (1999) capital expenditure regressions that allow different coefficients on positive and negative excess cash holdings (see their Table 8, pp. 36-37). In Model (4), we measure abnormal endowment as a dummy variable, $Dummy\ Ab\ Endow_{it-1}$, coded as '1' if the abnormal endowment is in the top quartile of the

[6] We measure *O&D COMP%*, *PROGEXP%*, and *INVESTMENT%* as percentages. However, we obtain qualitatively the same inference below if we employ instead logit transformations of these variables.

distribution in the year it is measured, and '0' otherwise. Under the assumption that we measure abnormal endowment with error, as compared to a continuous measure, this variable may allow for a more powerful test of whether agency problems are more severe in firms with the largest abnormal endowments. This last approach follows Opler et al. (1999) who find that capital expenditures and acquisitions are greatest in the highest quartile of excess cash holdings, and Harford (1999) who examines characteristics of "cash rich" firms with very large excess cash holdings.

When *CEO COMP*$_{it}$ and *O&D COMP%*$_{it}$ are the dependent variables, we expect the coefficients on *Ab Endow*$_{it-1}$ and *Dummy Ab Endow*$_{it-1}$ to be positive if firms with large abnormal endowments suffer from agency problems that result in excess managerial compensation. We expect the coefficients on *Ab Endow*$_{it-1}$ and *Dummy Ab Endow*$_{it-1}$ to be negatively related to *PROGEXP%*$_{it}$ because managers will seek to reduce program expenditures on the production of the not-for-profit good so as to maintain the excess endowment that can facilitate future excess private benefits. As discussed in Section 3, we do not predict the sign of coefficients on *Ab Endow*$_{it-1}$ and *Dummy Ab Endow*$_{it-1}$ in the *INVESTMENT%*$_{it}$ regression. Our prediction about the sign of the coefficient on *Ab Endow*$_{it-1}$** Neg Ab Endow*$_{it-1}$ is that it should be equal in magnitude and opposite in sign to the coefficient on *Ab Endow*$_{it-1}$ in each regression. This prediction parallels the prediction in Opler et al. (1999) that cash-related agency problems reside primarily in firms with excess cash holdings.

In each Model, the *Controls* control for the expected level of each dependent variable in the absence of agency problems. We expect that firm size and industry membership are important determinants of all of the dependent variables. We control for

firm size using *Log Expenses*$_{it-1}$, the natural logarithm of prior-year total expenses (IRS form 990 - line 17). We include industry (state) effects in all models to help control for industry-specific (state-specific) differences in income, regulation, and firm growth opportunities.

Hallock (2002) finds that outside fund-raising is the performance measure that best explains CEO compensation in not-for-profits. Thus, in the *CEO COMP*$_{it}$ and *O&D COMP%*$_{it-1}$ regressions, we follow Hallock (2002) and use the logarithm of total contributions in the current year to control for outside fund-raising in addition to our controls for size, industry, year, and state effects. Total contributions is the sum of direct and indirect public support and government grants (IRS form 990 - line 1d). To avoid losing 1,958 observations due to taking the logarithm of zero, we include a dummy variable, *Zero Contributions*$_{it}$, equal to 1 if outside fund-raising is zero, and 0 otherwise. We then measure *Log Contributions*$_{it}$ as the log of total contributions if positive, and 0 otherwise. In sensitivity tests, we also include an additional control for growth opportunities in our pay regressions by including the one-year-ahead realized percentage change in program expenditures.

5. Results

5.1. Expectation Model for Endowment Size

Table 2 – Panel A presents summary descriptive statistics for the variables included in the endowment model. All variables are winsorized at the 1% and 99% levels (i.e., for each variable we re-assign its value if it is less (greater) than the 1st (99th) percentile to the value of the 1st (99th) percentile) to mitigate the influence of outliers. The descriptive statistics show the winsorized data. The mean (median) value for *Endow/Exp*

is 1.38 (0.43), which implies that the average organization in our sample would be able to operate without additional revenues for 1.4 years. Seventy-three percent of the firms had access to debt finance in the previous ten years.

Table 2 - Panel B presents Pearson (Spearman) correlations above (below) the main diagonal for these variables.

Insert Table 2 here

Table 3 – Column I presents the results of the expectation model for endowments as described in Equation (1). Fiscal year, state, and industry dummies are included in the regression models but are not tabulated. In all regression specifications, we use Huber-White robust standard errors. These standard errors are a generalization of the White (1980) standard errors and are robust to both serial correlation and heteroskedasticity (Rogers, 1993). All explanatory variables except *Regulation* are statistically significant in the predicted direction. The total explanatory power of the model (R-square of 20%) is comparable to R-squares ranging from 0.23 to 0.24 in Fishman and Hubbard's (2002) Table 4. The results support the precautionary savings theory of endowment, in which firms with more volatile cash flows accumulate larger endowments, and large firms and firms with access to loans have lower endowment levels. Finally, we find that the interaction between the *Loan Dummy* and *CVREV* is negative and significant, consistent with the hypothesis that access to finance alleviates the necessity to accumulate endowment in order to self-protect from cash flow volatility.[7]

Fisman and Hubbard also predict that large endowments are less essential for

[7] A concern with the *Loan Dummy* variable is that it may be endogenous to endowments, i.e., a larger endowment makes it easier to obtain a loan. To address this concern, we remove the *Loan Dummy* variable, and estimate the remainder of the endowment model as a reduced form. If we use this model for computing abnormal endowment, all of our results below in Tables 5 to 8 are qualitatively the same.

firms with a greater proportion of variable costs. To proxy for lower variable costs within the organization, they compute a labor intensity variable, and predict a negative association between this variable and endowment. We do not include this variable in our primary model because one of our hypotheses predicts that excess endowments are associated with compensation-related agency problems, and total wages is potentially a measure of agency problems (Bertrand and Mullanaithan, 2003). However, for comparison with Fisman and Hubbard, in Column II, we tabulate the endowment model including labor intensity (*LABOR%*), measured as total compensation for all employees including salaries, pension plan contributions, benefits and taxes (form 990 - lines 25 + 26 + 27 + 28 + 29, column (a)). We express this variable as a percentage of total expenses (form 990 - line 17). The model in Column II also excludes the *Regulation* variable so that the specification is most closely related to the model used by Fisman and Hubbard. As expected, *LABOR%* is negatively related to endowment. The estimated coefficients for the remaining variables are very similar to the ones reported in Column I, and have the expected sign. In sensitivity tests, we find that none of our inferences are affected if instead we use the model in Column II to obtain our estimates of excess endowments.

We consider the regression in Table 3 - Column I to be a reasonable expectations model for the optimal endowment held by a firm. We then estimate a firm's excess endowment in each year as the residual from this model. That is, a firm with a positive (negative) residual is assumed to hold more (less) endowment than optimal.

Insert Table 3 here

5.2. The effect of excess endowment on managerial compensation, program expenses and investment in fixed assets.

Table 4 – Panel A presents summary descriptive statistics for the variables included in Equations (2), (3) and (4), where the dependent variables are measures of executive compensation, program expenses, and investment in fixed assets. The sample consists of 21,426 observations for 5,358 different firms. This sample is smaller than the sample reported in Table 2 because we lose a year of data when we employ lagged values of abnormal endowment and expenses as determinants of the dependent variables.

Again, all variables are winsorized at the 1% and 99% levels to mitigate the influence of outliers. CEO compensation averages $156,450 with a median of $113,390 and a 99th percentile value of $840,580. The mean (median) value for *O&D COMP%* is 2.1% (1.2%) which represents the average percentage of total expenses paid for salaries of officers and directors. Recall from Table 2 that mean endowment is 138% of expenses, indicating that for the mean firm, salaries of officers and directors are small relative to the endowment. The mean value for *PROGEXP%*, which is the percentage of total expenses dedicated to program services expenses, is 82%, but this measure varies substantially, with some firms paying out as much as 100% and others (at the 1st percentile) as little as 36.8%. Firms' annual investment in fixed assets (scaled by total expenses) averages 9.8%, with a median value of 5.9%. We also tabulate summary statistics for the logarithm of CEO compensation, abnormal endowment, and the logarithm of total expenses.

Table 4 - Panel B presents Pearson (Spearman) correlations above (below) the main diagonal for these variables.

Insert Table 4 here

Tables 5 through 8 present results from OLS regressions of compensation, program expense, and investment on proxies for abnormal endowment and control

variables. As described in Section 4.3, we tabulate three model specifications with different variables and functional forms for abnormal endowment. Fiscal year, state, and industry dummies are included in the regression models but are not tabulated. As above, in all regression specifications, we use Huber-White robust standard errors. These standard errors, which are a generalization of the White (1980) standard errors and are robust to both serial correlation and heteroskedasticity (Rogers, 1993).

Table 5 examines the relation between abnormal endowments and CEO compensation, *CEO COMP*. Consistent with Hallock (2002), we find in all specifications that *CEO COMP* is positively associated with contributions and with our size proxy, total expenses.[8] The coefficient on *Zero Contributions* indicates that CEOs who raise no funds earn substantially more than CEOs who raise a small amount of funds.[9]

In Column I, we use a continuous abnormal endowment variable (*Ab Endow*) as a proxy for the presence of agency problems. Consistent with our prediction in Hypothesis 1, *CEO COMP* exhibits a significant positive association with abnormal endowment.

Column II presents the results with the continuous abnormal endowment variable (*Ab Endow*), plus an interaction term between the abnormal endowment measure and a dummy variable for firms with negative endowments. Consistent with Hypothesis 1, the estimated coefficient for abnormal endowment is positive and statistically significant.

[8] Hallock uses total assets as a size proxy, but this variable is confounded in our tests by the fact that total assets are larger when endowments are larger. We obtain very similar results if we use the logarithm of "normal" assets (assets less abnormal endowment) instead of expenses in the regression model.

[9] One explanation for this finding is that the CEOs who raise no funds manage firms that are in different and/or more complex businesses in which donations are not important and therefore not used as a performance measure. For example, the firm may compete with for-profit businesses or may derive income from for-profit subsidiaries. As evidence for this conjecture, 64% of the CEOs with no contributions are in the healthcare industry. Dropping these observations has no effect on the results. In addition, as discussed below, dropping all firms in the health care industry has no effect on the results.

Also consistent with our predictions, and the intuition in Opler et al. (1999), we find that the estimated relation (-0.02) between abnormal endowment and CEO compensation is significantly smaller for negative endowment firms. The -0.01 total coefficient for negative endowment firms is computed as the sum of the estimated coefficients of *Ab Endow* (0.01) and the interaction term (-0.02). An F-test does not reject the hypothesis that the sum of coefficients is zero. This implies that there is a *positive* association between abnormal endowment and *CEO COMP* for the firms with positive endowment, but no association between *CEO COMP* and abnormal endowment for firms with negative abnormal endowments.

Column III shows that the significant positive relation between abnormal endowments and *CEO COMP* is robust to using *Dummy Ab Endow* as a proxy for large abnormal endowments (coded as '1' for firms in the top quartile of abnormal endowment in a given year).[10] In terms of economic significance, firms in the highest quartile of abnormal endowment pay their CEOs approximately 6% more than firms in the bottom three quartiles.

An alternative explanation for our finding that CEO compensation and abnormal endowment are positively correlated is that large endowments proxy for management quality. For example, executives with an exceptional ability to fund-raise may accumulate endowment funds faster than the funds can be efficiently allocated. Alternatively, an accumulation of excess endowment funds may indicate that the firm anticipates growth opportunities and requires higher quality executives to carry out this

[10] Our use of winsorized data and the abnormal endowment dummy mitigate the possibility that our results are driven by outliers. To provide further assurance that our results are not driven by outliers, we also conduct iteratively re-weighted regressions that are robust to the effect of outliers. The inference from these robust regressions is the same as that reported in Tables 5 to 8.

growth. In either case, we may observe a positive association between abnormal endowments and high pay for reasons unrelated to agency problems. Our inclusion of the fund-raising variable partly controls for this explanation. To more completely control for the need for high-quality managers, we include one-year-ahead realized percentage change in program expenses as a proxy for anticipated capital needs and growth opportunities. Including this one-year-ahead variable reduces the sample size to 16,645 observations, which is the reason we do not include this variable in the main tests. As shown in Column IV, including this variable in the CEO compensation regressions does not alter our finding that excess endowment is associated with excess pay. Although we only tabulate results comparable to the Column III specification, our inferences in specifications comparable to Columns I and II are also robust to including the change in program expense variable.

Insert Table 5 here

Table 6 presents results with *O&D COMP%* as a proxy for agency costs. Consistent with Hypothesis 1, the results in Column I show that *O&D COMP%* is positively related to *Ab Endow*. Column II presents the results with the continuous abnormal endowment variable (*Ab Endow*) plus an interaction term between the abnormal endowment measure and a dummy variable for firms with negative endowment. An F-test rejects the hypothesis that the -0.18 total coefficient for negative endowment firms is equal to zero, indicating that firms with low endowments pay more compensation, in contrast to our prediction of a zero total coefficient. An interpretation of this finding is that firms with extremely low endowments require executives that are highly skilled in fund-raising, and that it requires more effort and talent to run an under-

endowed institution.

Column III shows a positive relation between *O&D COMP%* and the indicator variable for large abnormal endowments, implying that officers and directors of firms in the top quartile of abnormal endowment receive higher pay. In terms of economic significance, firms in the extreme quartile of abnormal endowment have an increase in the ratio of officer and director compensation to expenses of 0.38% compared to the firms in the bottom three quartiles. For the average firm in the sample, this ratio would increase from 2.09% to 2.47%, an increase of 18%.

Finally, Column IV shows results when we include growth in program expenses as an additional proxy for anticipated capital needs and growth opportunities. We continue to find that excess endowment is associated with excess pay. Although we only tabulate results comparable to the specification in Column III, our inferences in specifications comparable to Columns I and II are also robust to including the change in program expense variable.

Insert Table 6 here

In Table 7, we test Hypothesis 2 by examining the relation between program expense as a fraction of total expense, *PROGEXP%*, and abnormal endowments. *PROGEXP%* is positively correlated with total expenses in all specifications. Because total expenses are comprised of program expenses, management expenses, and fund-raising expenses, this finding suggests that larger firms are more efficient in that a smaller fraction of each dollar of expenses goes toward administrative costs.

Consistent with the prediction in Hypothesis 2 that agency problems created by abnormal endowments render not-for-profits less efficient, we find in Column I that

PROGEXP% is negatively correlated with *Ab Endow*. This result continues to hold when we control for the relation between *PROGEXP%* and negative abnormal endowments in Column II. The marginal coefficient on negative abnormal endowment firms is not significant, suggesting that the negative relation between *PROGEXP%* and abnormal endowments holds for firms with both positive and negative abnormal endowments. Finally, we find a negative relation between *PROGEXP%* and the large endowment indicator variable, *Dummy Ab Endow*. In terms of economic significance, firms in the highest quartile of abnormal endowment have a ratio of program service expenses to total expenses that is 1.66% smaller than firms in the bottom three quartiles of abnormal endowment. For the average firm in the sample, this ratio would decrease from 82.23% to 80.57%, a decrease of 2.0%. Overall the results in Table 7 document a negative relation between abnormal endowment and program expenses, which supports our hypothesis that managers reduce program expenditures on the production of the not-for-profit good so as to maintain the excess endowment that can facilitate future excess private benefits.[11]

Insert Table 7 here

As noted above, large endowments might proxy for management quality, and the relations between excess endowment and pay could occur because we have inadequately controlled for management quality. In this case, high pay for high quality executives may also induce a negative relation between excess endowment and the program expense ratio (because a portion of executive pay is allocated to program expenses and to total

[11] As noted in Section 4.2, it is possible that the causality between excess endowments and low program expenses runs in either direction. That is, the desire to maintain a large endowment can induce managers to lower program expenses, or a history of lower program expenses can result in an excess endowment. In either case, excess endowments are indicative of agency problems.

expenses). To explore whether this explanation influences our results, we exclude officer and director compensation from the program expense ratio by removing it from both program expenses and total expenses. This exclusion does not alter our finding that excess endowment is associated with lower program expenses (untabulated).

In our final set of regressions, we follow Opler et al. (1999) and Harford (1999), and examine the relation between abnormal endowments and investment expenditures, *INVESTMENT%*. However, as discussed above, we have no prediction about the sign of the relation between abnormal endowment and investment. In Table 8, we find that the level of investment has a positive relation with abnormal endowment when it is measured as a continuous variable or as an indicator variable for the top quartile group. However, when we estimate separate coefficients for firms with positive and negative abnormal endowment, we find that the sensitivity of investments to abnormal endowment is insignificant for firms with positive abnormal endowments, but is statistically positive for firms with negative endowments. These results suggest that firms do not respond to excess endowment by investing more, but that firms with endowment shortages invest less in fixed assets.

Insert Table 8 here

5.3. Persistence of Abnormal Endowment

Considered together, the results in Tables 5 through 8 indicate that firms with excess endowments pay more to CEOs and officers and directors, spend less on program expenses, and do not use the excess endowment funds on investment. These findings suggest that management has an incentive to maintain the abnormal endowment, and suggest that abnormal endowments may not revert back to normal levels very quickly. To

examine this possibility, we follow Opler et al. (1999) and examine the persistence of abnormal endowments over time. We divide our sample firms into quartiles based on excess endowment every year. We then follow the firms over the next five years to determine which abnormal endowment quartile the firm belongs to in the subsequent years.

In Table 9, we present the persistence of excess endowment for firms selected based on the first time they enter the highest quartile of excess endowment. We find that 80% of the firms remain in the top quartile of excess endowment in the following year and 69% of the firms remain in the top quartile group five years later. The persistence of excess endowment is substantially higher than the persistence of excess cash holdings documented in for-profit firms by Opler et al. (1999), who find that only 39% of the firms remain in the top quartile group five years later.[12] These findings suggest that unlike for-profit firms, where excess cash holdings manifest their agency problems through excessive acquisition and investment activities, excess not-for-profit endowments are more persistent, potentially facilitating excess compensation over a period of time.

Insert Table 9 here

6. Robustness to excluding health care

Health-care organizations, which are primarily hospitals, comprise over forty per cent of our sample. As noted by Weisbrod (1998) and Fisman and Hubbard (2002), health-care appears to be systematically different from other not-for-profit activities. In particular, hospitals face for-profit competition and may behave more like for-profit

[12] As a robustness check of the results in Table 9, we sort firms in quartiles of abnormal endowment every year only for firms with positive abnormal endowment. The results of this procedure are very similar to the ones presented in Table 9: We find that 75% of the firms in the top quartile group remain in this group five years later.

organizations. Second, hospitals are significant issuers of tax-exempt debt, and use the proceeds of these issuances to increase their endowments (Gentry, 2002). Consistent with the approach in Fisman and Hubbard (2002), to ensure that our results are not driven by these organizations, we remove them from the sample and re-estimate our model of excess endowments. We then use the residuals from this model to re-run our tests in Tables 5, 6, 7, and 8. This reduces the sample to 12,553 observations in the second-stage regressions, as compared to 21,246 in the full sample. The results are qualitatively the same: when excess endowments are higher, CEO compensation and officer and director compensation are higher, and program expenses are lower. There is, however, some diminution in statistical significance, partly due to the smaller sample size.

7. Conclusion

In this paper, we examine agency problems in not-for-profit firms that arise from excess holdings of endowment assets. Previous research explores agency costs of excess cash holdings in for-profit firms, and although the evidence is somewhat mixed, researchers generally find that excess cash is associated with excessive acquisitions and investment. Compared to cash holdings in for-profit firms, not-for-profits hold substantially greater assets in their endowments. Further, not-for-profits do not have obvious residual claimants with a strong interest and ability to monitor management, and unlike for-profits, it is generally not feasible for not-for-profits to return excess assets to donors. However, the ability of not-for-profit managers to undertake acquisitions as a way to extract rents is also very limited. Although Hansmann (1990) conjectures the existence of agency problems with excess endowments, and Fisman and Hubbard (2002) model optimal endowment levels, it is an open and interesting empirical question as to

whether and how not-for-profit excess endowment holdings result in agency problems.

We hypothesize that excess endowments in not-for-profits cause agency problems that are manifested through excessive executive pay and decreased efficiency in the production of the not-for-profit good. To test these hypotheses, we examine deviations from an estimated model of optimal endowment developed by Fisman and Hubbard (2002). We find that excess CEO pay and total officer and director pay are greater for firms with excess endowments. We also provide evidence that program expenditures toward the not-for-profit good are lower for firms with excess endowments. Finally, we find only modest evidence that managers use excess endowments to increase investment. Instead, excess endowments are highly persistent over time, much more so than in for-profit firms, suggesting that not-for-profit managers prefer the flexibility and discretion afforded them by excess endowment assets. Overall, we find that excess endowments are associated with agency problems.

Corporate governance and executive compensation in not-for-profits has come under intense scrutiny in recent years, and there is increasing concern about these issues among regulators. For example, in his June 22, 2004 testimony to the U.S. Senate Committee on Finance, Mark W. Everson, Commissioner of Internal Revenue, stated:

> The issues of governance and executive compensation are closely intertwined. We are concerned that the governing boards of tax-exempt organizations are not, in all cases, exercising sufficient diligence as they set compensation for the leadership of the organizations. There have been numerous recent reports of executives of both private foundations and public charities who are receiving unreasonably large compensation packages.

Beginning in the summer of 2004, the IRS plans to undertake an aggressive investigation of nonprofit governance, as well as the practices nonprofits use to set compensation. Our finding that excessive executive compensation is more pervasive at not-for-profits with

excess endowments provides insight into the types of not-for-profit organizations where governance and executive compensation are less likely to stand up to scrutiny.

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Table 1 – Descriptive Statistics by Industry

This table presents median descriptive statistics by industry following the major categories of the National Taxonomy of Exempt Entities (NTEE) industry classification. *Endow/Exp* is the sum of cash, savings, and investment securities (form 990 - line 45, column (b) + line 46, column (b) + line 54, column (b)) deflated by total expenses (form 990 - line 17). *Revenue* is the total revenue (form 990 - line 12) in millions of dollars. *Expenses* is the total expenses (form 990 - line 17) in millions of dollars. *CEO COMP* is total CEO compensation (form 990 – Schedule A – Part I, column (c) + column (d) + column (e)) in thousands of dollars. *O&D COMP%* is the compensation of officer and directors (form 990 - line 25, column (a)) as a percentage of total expenses (form 990 - line 17). *PROGEXP%* is total program services expenses (form 990 - line 13) as a percentage of total expenses (form 990 - line 17). *INVESTMENT%* is the change in land, buildings, and equipment (form 990 - line 57a, column (b)) plus depreciation (form 990 - line 42, column (a)) as a percentage of total expenses.

Industry	% of Total	*Endow/Exp*	*Revenue* ($ millions)	*Expenses* ($ millions)	*CEO COMP* ($ thousands)	*O&D COMP%*	*PROGEXP %*	*INVESTMENT %*
Arts, Culture, and Humanities	5.48	1.44	12.29	9.42	90.87	2.70	75.50	5.08
Education	26.74	1.00	25.98	21.96	98.15	1.55	83.06	7.62
Environmental Quality	0.95	1.66	11.35	7.54	79.83	3.25	77.91	6.93
Animal Related	0.74	1.13	13.42	11.48	89.25	1.92	76.90	10.30
Health	41.46	0.22	65.18	62.54	164.62	0.75	86.71	5.82
Mental Health	1.73	0.21	13.28	12.39	117.61	2.06	85.62	2.99
Diseases, Medical Disciplines	1.35	0.57	20.33	18.91	159.99	2.18	80.74	1.57
Medical Research	1.20	1.38	12.66	10.47	159.67	2.86	83.77	5.66
Crime, Legal Related	0.29	0.28	11.67	10.05	115.64	2.40	84.44	1.61
Employment, Job Related	0.52	0.23	11.99	11.17	72.61	2.43	85.96	3.54
Food, and Agriculture	0.13	0.27	7.71	8.31	66.08	1.97	83.12	0.45
Housing, Shelter	0.93	0.35	6.28	5.58	72.70	2.61	90.46	2.45
Public safety	0.09	0.61	29.73	29.09	111.85	1.81	72.91	5.41
Recreation, Sports	0.66	0.71	8.25	7.14	83.00	2.65	83.30	4.12
Youth Development	0.80	0.86	6.32	5.53	85.63	2.43	83.28	4.14
Human services	11.64	0.41	12.03	11.40	76.72	1.45	86.69	5.86
International, Foreign Affairs	1.00	0.39	32.15	24.90	108.22	1.21	81.22	0.87
Civil Rights, Social Action	0.13	1.81	9.67	8.33	119.55	2.64	73.91	1.46
Community Improvement	1.33	0.81	6.87	6.37	82.27	3.14	84.70	1.84
Science Research	1.30	0.44	20.20	18.88	137.56	2.04	84.67	3.18
Social Science Research	0.23	2.05	17.10	13.41	127.94	3.48	79.32	2.66
Public, Society Benefit	0.61	0.75	19.56	18.09	119.75	2.75	81.79	2.09
Religious	0.68	0.86	11.11	10.00	77.79	1.74	81.83	3.72
Total Observations	29,297	29,297	29,297	29,297	21,426	21,426	21,426	21,426

Table 2 – Descriptive Statistics – Endowment Model

Panel A presents descriptive statistics for the variables used in the endowment model. Panel B presents pairwise correlations for the same variables – Pearson correlations are reported above the diagonal and Spearman correlations below the diagonal. P-values are shown in italics below correlations. *Endow/Exp* is the sum of cash, savings, and investment securities (form 990 - line 45, column (b) + line 46, column (b) + line 54, column (b)) deflated by total expenses (form 990 - line 17). *Regulation* measures the strength of regulatory oversight across states. This variable takes discrete values ranging from '0' to '8'. *CVREV* is the coefficient of variation of total revenue (form 990 - line 12) measured as the ratio of the standard deviation of total revenue to the mean total revenue both measured in the last five years ending at year t. We delete observations with less than four years of data (among the last five years) available to compute the coefficient of variation of total revenues. *Log Revenue* is the natural logarithm of total revenue (form 990 - line 12). *Loan Dummy* is a dummy variable coded '1' if the firm in year t has obtained a loan in the last ten years ending at year t. We categorize a firm as having a loan if it has tax-exempt bond liabilities (form 990 - line 64a, column (b)) or mortgages and other notes payable (form 990 - line 64b, column (b)).

Panel A – Descriptive Statistics

Variable	N	Mean	STD	P1	Q1	Median	Q3	P99
Endow/Exp$_t$	29,297	1.38	2.65	0.00	0.14	0.43	1.24	16.69
Regulation	29,297	4.54	2.62	0	2	4	7	8
CVREV	29,297	0.19	0.15	0.02	0.10	0.15	0.22	0.88
Log Revenue $_t$	29,297	17.21	1.37	13.77	16.29	17.17	18.15	20.57
Loan Dummy	29,297	0.73	0.45	0	0	1	1	1

Panel B – Correlation Matrix

Variable	*Endow/Exp*$_t$	*Regulation*	*CVREV*	*Log Revenue* $_t$	*Loan Dummy*
Endow/Exp$_t$	---	0.00	0.28	-0.19	-0.19
		0.9571	*<.0001*	*<.0001*	*<.0001*
Regulation	0.03	---	-0.01	-0.01	-0.03
	<.0001		*0.0542*	*0.0659*	*<.0001*
CVREV	0.15	-0.02	---	-0.15	-0.03
	<.0001	*0.0004*		*<.0001*	*<.0001*
Log Revenue $_t$	-0.22	-0.01	-0.14	---	0.08
	<.0001	*0.0579*	*<.0001*		*<.0001*
Loan Dummy	-0.18	-0.03	-0.02	0.08	---
	<.0001	*<.0001*	*0.0096*	*<.0001*	

Table 3 – Determinants of Optimal Endowment

This table presents the results of an OLS model of the determinants of optimal endowment. *Endow/Exp* is the sum of cash, savings, and investment securities (form 990 - line 45, column (b) + line 46, column (b) + line 54, column (b)) deflated by total expenses (form 990 - line 17). *Regulation* measures the strength of regulatory oversight across states. This variable takes discrete values ranging from '0' to '8'. *CVREV* is the coefficient of variation of total revenue (form 990 - line 12) measured as the ratio of the standard deviation of total revenue to the mean total revenue both measured in the last five years ending at year t. We delete observations with less than four years of data (among the last five years) available to compute the coefficient of variation of total revenues. *Log Revenue* is the natural logarithm of total revenue (form 990 - line 12). *Loan Dummy* is a dummy variable coded '1' if the firm in year t has obtained a loan in the last ten years ending at year t. We categorize a firm as having a loan if it has tax-exempt bond liabilities (form 990 - line 64a, column (b)) or mortgages and other notes payable (form 990 - line 64b, column (b)). *LABOR%* is the total compensation for all employees including salaries, pension plan contributions, benefits and taxes (form 990 - lines 25 + 26 + 27 + 28 + 29, column (a)) as a percentage of total expenses (form 990 - line 17). Industry, state, and year dummies are included in the model but not tabulated in the results. T-statistics using the Huber-White robust standard errors are presented in parenthesis below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels.

Variable	Predicted Sign	Dep. Variable: $Endow/Exp_t$	
		I	II
Intercept		3.40**	6.08***
		(2.55)	(6.94)
Regulation	+	0.68	
		(1.44)	
CVREV	+	7.38***	7.02***
		(13.08)	(12.54)
$Log\ Revenue_t$	-	-0.22***	-0.25***
		(-7.15)	(-7.75)
Loan Dummy	-	-0.30***	-0.27**
		(-2.80)	(-2.53)
*CVREV *Loan Dummy*	-	-4.05***	-4.06***
		(-7.00)	(-7.01)
$LABOR\%_t$	-		-0.02***
			(-7.20)
R-square		0.20	0.21
Observations		29,297	29,297

Table 4 – Descriptive Statistics – Agency Measures and Controls

Panel A presents descriptive statistics for the variables used in the regressions in Tables 5 to 8. Panel B presents pairwise correlations for the same variables – Pearson correlations are reported above the diagonal and Spearman correlations below the diagonal. P-values are shown in italics below correlations. *CEO COMP* is the natural logarithm of CEO compensation (form 990 – Schedule A – Part I, column (c) + column (d) + column (e)). *O&D COMP%* is the compensation of officer and directors (form 990 - line 25, column (a)) as a percentage of total expenses (form 990 - line 17). *PROGEXP%* is total program services expenses (form 990 - line 13) as a percentage of total expenses (form 990 - line 17). *INVESTMENT%* is the change in land, buildings, and equipment (form 990 - line 57a, column (b)) plus depreciation (form 990 - line 42, column (a)). We deflate this change by total expenses (form 990 - line 17) as a percentage of total expenses. *Log Expenses* is the natural logarithm of total expenses (form 990 - line 17). *Ab Endow* is the abnormal level of endowment at year t-1 measured as the residual of the regression of determinants of optimal endowment (Table 3), where endowment is the sum of cash, savings, and investment securities (form 990 - line 45, column (b) + line 46, column (b) + line 54, column (b)) deflated by total expenses (form 990 - line 17). *Dummy Ab Endow* is a dummy variable coded as '1' if the abnormal endowment at year t-1 is in the top quartile of the distribution and '0' otherwise. *Log Contributions* is the natural logarithm of total contributions (form 990 - line 1d). This variable is set to zero if total contributions equal zero.

Panel A – Descriptive Statistics

Variable	N	Mean	STD	P1	Q1	Median	Q3	P99
CEO COMP$_t$ (in $ thousands)	21,426	156.45	131.40	41.31	78.80	113.39	182.85	840.58
CEO COMP$_t$ (in natural logarithm)	21,426	11.74	0.62	10.63	11.27	11.64	12.12	13.64
O&D COMP%$_t$	21,426	2.09	2.74	0.07	0.62	1.24	2.41	17.90
PROGEXP%$_t$	21,426	82.23	11.86	36.82	76.42	84.66	90.29	100.00
INVESTMENT%$_t$	21,426	9.78	16.83	-41.30	2.50	5.85	11.40	105.58
Log Expenses$_{t-1}$	21,426	17.17	1.36	13.85	16.24	17.12	18.09	20.51
Ab Endow$_{t-1}$	21,426	0.02	2.26	-3.63	-0.96	-0.31	0.28	11.44
Dummy Ab Endow$_{t-1}$	21,426	0.26	0.44	0	0	0	1	1
Log Contributions$_t$	21,426	12.89	4.64	0.00	12.01	14.23	15.64	19.04

Table 4 (cont'd)

Panel B – Correlation Matrix

Variable	*CEO COMP* $_t$	*O&D COMP%* $_t$	*PROGEXP%* $_t$	*INVESTMENT%* $_t$	*Log Expenses* $_{t-1}$	*Ab Endow* $_{t-1}$	*Dummy Ab Endow* $_{t-1}$	*Log Contributions* $_t$
CEO COMP $_t$	---	-0.22	0.15	-0.05	0.66	-0.01	0.03	0.00
		<.0001	*<.0001*	*<.0001*	*<.0001*	*0.2307*	*<.0001*	*0.9852*
O&D COMP% $_t$	-0.41	---	-0.24	0.02	-0.51	0.09	0.08	-0.10
	<.0001		*<.0001*	*0.0024*	*<.0001*	*<.0001*	*<.0001*	*<.0001*
PROGEXP% $_t$	0.13	-0.27	---	-0.06	0.27	-0.08	-0.07	-0.08
	<.0001	*<.0001*		*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*
INVESTMENT% $_t$	0.05	-0.04	-0.04	---	-0.09	0.05	0.05	0.07
	<.0001	*<.0001*	*<.0001*		*<.0001*	*<.0001*	*<.0001*	*<.0001*
Log Expenses $_{t-1}$	0.67	-0.68	0.25	0.08	---	-0.08	-0.02	0.06
	<.0001	*<.0001*	*<.0001*	*<.0001*		*<.0001*	*0.0015*	*<.0001*
Ab Endow $_{t-1}$	0.13	-0.09	0.00	0.04	0.14	---	0.62	0.04
	<.0001	*<.0001*	*0.4939*	*<.0001*	*<.0001*		*<.0001*	*<.0001*
Dummy Ab Endow $_{t-1}$	0.02	0.06	-0.06	0.03	-0.03	0.76	---	0.09
	0.0016	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*		*<.0001*
Log Contributions $_t$	0.04	0.03	-0.10	0.08	0.09	0.06	0.15	---
	<.0001	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	*<.0001*	

Table 5 – Determinants of CEO Compensation

This table presents the results of an OLS model of the determinants of CEO Compensation (*CEO COMP*). *CEO COMP* is the natural logarithm of CEO compensation (form 990 – Schedule A – Part I, column (c) + column (d) + column (e)). *Log Expenses* is the natural logarithm of total expenses (form 990 - line 17). *Log Contributions* is the natural logarithm of total contributions (form 990 - line 1d). This variable is set to zero if total contribution equal zero. *Zero Contributions* is a dummy variable coded as '1' if total contributions equal zero, and '0' otherwise. *Ab Endow* is the abnormal level of endowment at year t-1 measured as the residual of the regression of determinants of optimal endowment (Table 3), where endowment is the sum of cash, savings, and investment securities (form 990 - line 45, column (b) + line 46, column (b) + line 54, column (b)) deflated by total expenses (form 990 - line 17). *Neg Ab Endow* is a dummy variable coded as '1' if the abnormal endowment at year t-1 is less than or equal to zero, and '0' otherwise. *Dummy Ab Endow* is a dummy variable coded as '1' if the abnormal endowment at year t-1 is in the top quartile of the distributions, and '0' otherwise. Δ*Prog Expenses* is the percentage change in program services expenses (form 990 - line 13) from year t to t+1. T-statistics using the Huber-White robust standard errors are presented in parenthesis below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels. F-Test tests the hypothesis that the sum of the coefficient for *Ab Endow* and the coefficient for the negative abnormal endowment interaction term equal zero.

Variable	Predicted Sign	Dep. Variable: $CEO\ COMP_t$			
		I	II	III	IV
Intercept		6.68***	6.59***	6.71***	6.61***
		(45.80)	(43.85)	(46.04)	(44.63)
$Log\ Expenses_{t-1}$	+	0.26***	0.26***	0.26***	0.26***
		(42.41)	(41.29)	(42.41)	(38.87)
$Log\ Contributions_t$	+	0.02***	0.02***	0.02***	0.02***
		(6.22)	(6.11)	(6.10)	(5.81)
$Zero\ Contributions_t$	?	0.31***	0.30***	0.31***	0.32***
		(6.71)	(6.54)	(6.62)	(6.29)
$Ab\ Endow_{t-1}$	+	0.01***	0.01***		
		(3.96)	(4.59)		
$Ab\ Endow_{t-1}$*$Neg\ Ab\ Endow_{t-1}$	-		-0.02***		
			(-2.72)		
$Dummy\ Ab\ Endow_{t-1}$	+			0.06***	0.06***
				(4.84)	(4.34)
Δ$Prog\ Expenses_{t+1}$	+				0.06***
					(2.77)
Industry, state, and year dummies		Yes	Yes	Yes	Yes
R-square		0.52	0.52	0.52	0.52
F-Test			1.69		
Observations		21,426	21,426	21,426	16,645

Table 6 – Determinants of Compensation of Officers and Directors

This table presents OLS models of the determinants of Compensation of Officers and Directors (*O&D COMP%*). *O&D COMP%* is the compensation of officer and directors (form 990 - line 25, column (a)) as a percentage of total expenses (form 990 - line 17). *Log Expenses* is the natural logarithm of total expenses (form 990 - line 17). *Log Contributions* is the natural logarithm of total contributions (form 990 - line 1d). This variable is set to zero if total contributions equal zero. *Zero Contributions* is a dummy variable coded as '1' if total contributions equal zero, and '0' otherwise. *Ab Endow* is the abnormal level of endowment at year t-1 measured as the residual of the regression of determinants of optimal endowment (Table 3), where endowment is the sum of cash, savings, and investment securities (form 990 - line 45, column (b) + line 46, column (b) + line 54, column (b)) deflated by total expenses (form 990 - line 17). *Neg Ab Endow* is a dummy variable coded as '1' if the abnormal endowment at year t-1 is less than or equal to zero, and '0' otherwise. *Dummy Ab Endow* is a dummy variable coded as '1' if the abnormal endowment at year t-1 is in the top quartile of the distributions, and '0' otherwise. Δ*Prog Expenses* is the percentage change in program services expenses (form 990 - line 13) from year t to t+1. T-statistics using the Huber-White robust standard errors are presented in parenthesis below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels. F-Test tests the hypothesis that the sum of the coefficient for *Ab Endow* and the coefficient for the interaction term equal zero.

Variable	Predicted Sign	Dep. Variable: *O&D COMP%*$_t$			
		I	II	III	IV
Intercept		20.10***	18.96***	20.24***	19.60***
		(21.97)	(20.63)	(22.17)	(19.71)
Log Expenses$_{t-1}$	-	-1.16***	-1.11***	-1.17***	-1.11***
		(-29.30)	(-28.93)	(-29.87)	(-28.02)
Log Contributions$_t$	+	0.10***	0.09***	0.09***	0.08***
		(5.47)	(5.27)	(5.24)	(4.23)
Zero Contributions$_t$	?	2.18***	2.07***	2.12***	1.97***
		(7.11)	(6.80)	(6.99)	(6.05)
Ab Endow $_{t-1}$	+	0.05***	0.11***		
		(2.87)	(5.01)		
Ab Endow $_{t-1}$**Neg Ab Endow* $_{t-1}$	-		-0.29***		
			(-4.44)		
Dummy Ab Endow $_{t-1}$	+			0.38***	0.36***
				(5.77)	(5.19)
Δ*Prog Expenses*$_{t+1}$	+				0.92***
					(6.18)
Industry, state, and year dummies		Yes	Yes	Yes	Yes
R-square		0.32	0.32	0.32	0.32
F-Test			10.49***		
Observations		21,426	21,426	21,426	16,645

Table 7 – Determinants of Program Expenses

This table presents the results of an OLS model of the determinants of management and general expenses (*PROGEXP%*). *PROGEXP%* is total program services expenses (form 990 - line 13) as a percentage of total expenses (form 990 - line 17). *Log Expenses* is the natural logarithm of total expenses (form 990 - line 17). *Ab Endow* is the abnormal level of endowment at year t-1 measured as the residual of the regression of determinants of optimal endowment (Table 3), where endowment is the sum of cash, savings, and investment securities (form 990 - line 45, column (b) + line 46, column (b) + line 54, column (b)) deflated by total expenses (form 990 - line 17). *Neg Ab Endow* is a dummy variable coded as '1' if the abnormal endowment at year t-1 is less than or equal to zero, and '0' otherwise. *Dummy Ab Endow* is a dummy variable coded as '1' if the abnormal endowment at year t-1 is in the top quartile of the distributions and '0' otherwise. T-statistics using the Huber-White robust standard errors are presented in parenthesis below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels. F-Test tests the hypothesis that the sum of the coefficient for *Ab Endow* and the coefficient for the interaction term equal zero.

Variable	Predicted Sign	Dep. Variable: $PROGEXP\%_t$		
		I	II	III
Intercept		42.96***	41.90***	42.11***
		(9.58)	(9.22)	(9.36)
$Log\ Expenses_{t-1}$	+	2.34***	2.39***	2.41***
		(16.91)	(17.15)	(17.10)
$Ab\ Endow_{t-1}$	-	-0.33***	-0.27**	
		(-3.96)	(-2.49)	
$Ab\ Endow_{t-1}$*$Neg\ Ab\ Endow_{t-1}$	+		-0.27	
			(-0.97)	
$Dummy\ Ab\ Endow_{t-1}$	-			-1.66***
				(-4.95)
Industry, state, and year dummies		Yes	Yes	Yes
R-square		0.14	0.14	0.14
F-Test			5.92**	
Observations		21,426	21,426	21,426

Table 8 – Determinants of Investment

This table presents the results of an OLS model of the determinants of *INVESTMENT%*. *INVESTMENT%* is the change in land, buildings, and equipment (form 990 - line 57a, column (b)) plus depreciation (form 990 - line 42, column (a)) from year t-1 to t. We deflate this change by total expenses (form 990 - line 17), and multiply it by 100 to express investment as a percentage of total expenses. *Log Expenses* is the natural logarithm of total expenses (form 990 - line 17). *Ab Endow* is the abnormal level of endowment at year t-1 measured as the residual of the regression of determinants of optimal endowment (Table 3), where endowment is the sum of cash, savings, and investment securities (form 990 - line 45, column (b) + line 46, column (b) + line 54, column (b)) deflated by total expenses (form 990 - line 17). *Neg Ab Endow* is a dummy variable coded as '1' if the abnormal endowment at year t-1 is less than or equal to zero, and '0' otherwise. *Dummy Ab Endow* is a dummy variable coded as '1' if the abnormal endowment at year t-1 is in the top quartile of the distributions, and '0' otherwise. T-statistics using the Huber-White robust standard errors are presented in parenthesis below coefficient estimates. *, **, and *** indicate two-tailed statistical significance at 10, 5, and 1 percent levels. F-Test tests the hypothesis that the sum of the coefficient for *Ab Endow* and the coefficient for the interaction term equal zero.

Variable	Predicted Sign	Dep. Variable: $INVESTMENT\%_t$		
		I	II	III
Intercept		17.57***	19.80***	18.33***
		(4.78)	(5.22)	(4.95)
$Log\ Expenses_{t-1}$	-	-0.59***	-0.69***	-0.66***
		(-4.47)	(-5.09)	(-4.87)
$Ab\ Endow_{t-1}$	+/-	0.30***	0.18	
		(3.05)	(1.35)	
$Ab\ Endow_{t-1}$*$Neg\ Ab\ Endow_{t-1}$	+/-		0.56*	
			(1.83)	
$Dummy\ Ab\ Endow_{t-1}$	+/-			1.81***
				(5.12)
Industry, state, and year dummies		Yes	Yes	Yes
R-square		0.05	0.05	0.05
F-Test			9.65***	
Observations		21,426	21,426	21,426

Table 9 – Persistence of Excess Endowment

This table examines the persistence of excess endowment for firms in the highest excess endowment quartile. Firms are ranked into quartiles every year based on the abnormal level of endowment (*Ab Endow*) at year t. *Ab Endow* is the residual from the determinants of optimal endowment regression (Table 3), where endowment is the sum of cash, savings, and investment securities (form 990 - line 45, column (b) + line 46, column (b) + line 54, column (b)) deflated by total expenses (form 990 - line 17). Firms are selected based on the first time they enter the highest quartile of excess endowment. The firms are followed for the next five years to determine the quartile in which they belong in the subsequent years. Quartile 4 represents the highest excess endowment quartile, and Year 0 is the starting measurement year. Numbers shown are percentages. The number of firm years in each quartile, each year, is in parenthesis.

Time since firm enters top quartile of excess endowment	Percentage of firms in quartile of excess endowment			
	Quartile 1	Quartile 2	Quartile 3	Quartile 4
Year 0				100.00
				(2,211)
Year 1	2.09	2.09	15.36	80.45
	(36)	(36)	(264)	(1,383)
Year 2	2.97	4.14	18.52	74.38
	(38)	(53)	(237)	(952)
Year 3	3.80	5.84	19.08	71.28
	(39)	(60)	(196)	(732)
Year 4	4.34	6.27	20.72	68.67
	(36)	(52)	(172)	(570)
Year 5	5.72	5.25	19.87	69.16
	(36)	(33)	(125)	(435)